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An Inaugural dissertation on Intermittent Fever

By

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of Georgia

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A Dissertation on Intermittent Fever.

This is a disease of periodical recurrence, having between the paroxysms a complete intermission of all the febrile symptoms. Cullen places it in his class Pyrexiæ and order Febres, defining it a fever arising from marsh miasma consisting of many paroxysms. It has received different names according to the length of time which intervens between the beginning of one paroxysm and that of the next.

If they recur every twentyfour hours it is called a quotidian, if they recur every fortyeight hours it is called a tertian, if they recur every seventytwo hours it is called a quartan. Authors mention fevers recurring at intervals of five, seven and nine days, of months and even annually; but these are either anomalies or of such rare occurrence as not to merit further notice.

Besides the primary forms above mentioned, there is the

double tertian, having a paroxysm every day, with alternate paroxysms alike. The double tertian, having two paroxysms every other day. The triple tertian, having two paroxysms on one day, and one on the next. The double quartan, having two paroxysms on the first day, none on the second and third, but two again on the fourth. The double quartan, having a paroxysm on the first, another on the second, but none on the third. The triple quartan, having three paroxysms every fourth day. The triple quartan, having a paroxysm every day, every fourth paroxysm being alike. +
The tertian is the most common form of the disease.
The disease frequently appears, first in the quotidian type, but soon degenerates into the tertian, and thence into the quartan, in which last form, it often remains for one or two years. Dr Wilson says the quotidian is a rare form of the disease — that most cases, having a paroxysm every day, are double tertians. To this I cannot subscribe. From the paroxysms returning at the same hour every day, their force and duration the same, and from their similarly in every respect, I am constrained

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to consider them quotidians, and the double tertian comparitively a rare type of the disease. I have often observed that intermittent fever seldom remains long in the quotidian type, it either becomes remittent or continued, or degenerates into the tertian or quartan.
The paroxysm sometimes comes on an hour sooner at every attack than the preceding, forming what is called an anticipating ague; sometimes an hour later, forming a postponing ague. I should not omit to remark, that in anticipating agues, when the paroxysm comes on at eight oclock in the forenoon, the next will usually come on at eight oclock in the afternoon of the succeeding day, if it be a tertian. The same remark holds good of the other forms of the disease. The converse is true of postponing agues. A large majority of attacks happen in the daytime, and according to most authors, the quotidian in the morning, the tertian at noon, and the quartan in the afternoon. Those attacks which happen in august are called autumnal, those which happen in february are called ver-

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nal. Vernal intermittents generally disappear on the approach of summer. When the disease is interrupted in its course, by medicine or other causes, it is disposed to return on the seventh, fourteenth and twenty ~~first~~ days. Therefore it is important, in a practical point of view, to attend particularly to these days. Miasma will usually produce fever in five or ten days after its reception into the system. It will sometimes produce it sooner, often after a much longer period – even of months. The interval between the paroxysms is called apyrexia. The paroxysm is naturally divided into the cold, hot and sweating stages.

The cold stage.

The patient first feels languid, uneasy and restless; he says he is ill, yet cannot fix upon any particular part, as the seat of his disease; he has an unceasing desire to change his place or posture, yet there is a feel of wearing which resists that disposition; he soon feels a sense of external cold and desires to

sit near the fire or in the direct rays of the sun; he yawns and stretches; his pulse is weaker and rather slower than natural; his nails have a dark bluish appearance, owing probably to the slow movement of the blood in the capillaries; his skin is constricted, giving it that appearance called cutis anserina, and a chilly sensation commences in the superior part of the back and runs downwards, following the course of the spine, which soon becomes general; his teeth begin to chatter; rigors come on, together with a tremour of the whole body, often so violent, as to shake the bed; he complains of extreme cold, yet his skin is warm to the feel of another; his respiration is quick, hurried and anxious; has a sense of weight about the praecordia, and a dry convulsive cough; his bowels are obstinately constipated; his pulse is small, frequent and often irregular; his features are shrunk, and his thirst considerable; his urine colourless; and with these, there is a total loss of appetite. During the cold stage, ulcers and

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running sores dry up, but these return to their former state, upon the accession of the hot fit.
The cold stage usually lasts from one to two hours.

The hot Stage.

The hot stage comes on with alternate flashes and chills, and occasionally, nausea and vomiting; the features become full and round; the skin dry and hot; the pulse full, strong and regular; the urine high coloured, and the thirst almost insupportable. Not unfrequently, there is a preternatural determination of blood to the head, indicated by the injected eye, the flushed countenance and the throbbing of the temporal arteries; producing epistaxis or delirium.

The sweating stage.

The first appearance of the sweating stage, is a moisture on the forehead, next on the breast and neck, and thence over the body and extremities. The urine is still high coloured and upon exposure to the atmosphere soon becomes turbid; the thirst abates; the pulse becomes slow, soft and full, and the functions return to their

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natural state. Cases are on record, where the cold, hot and sweating stages, have separately been wanting. Intermittents sometimes attack a particular part or member of the body, as an arm, leg, eye, &c. going through all the stages with that regularity, which is so striking a trait in this disease. The remedies, suited to intermittent fever in general, are equally applicable to these cases.

Predisposing cause.

Marsh miasma is indisputably the most common cause of intermittent fever. This discovery was made by Lancisi about the middle of the seventeenth century. It is evolved by the decomposition and putrefaction of vegetable substances. It cannot be detected by the taste, smell, or by the nicest eudiometrical tests. Every attempt, heretofore made, to ascertain the precise nature of this effluvium has proved abortive. A heat, not less than eighty degrees of Fahrenheit, and some degree of moisture, are necessary for its production. Fens, bogs and marshes are the most fruitful sources of this pestiferous agent; but it is generated, in large quantities, by an argillaceous soil, after long continued rains, succeeded by excessive heat.

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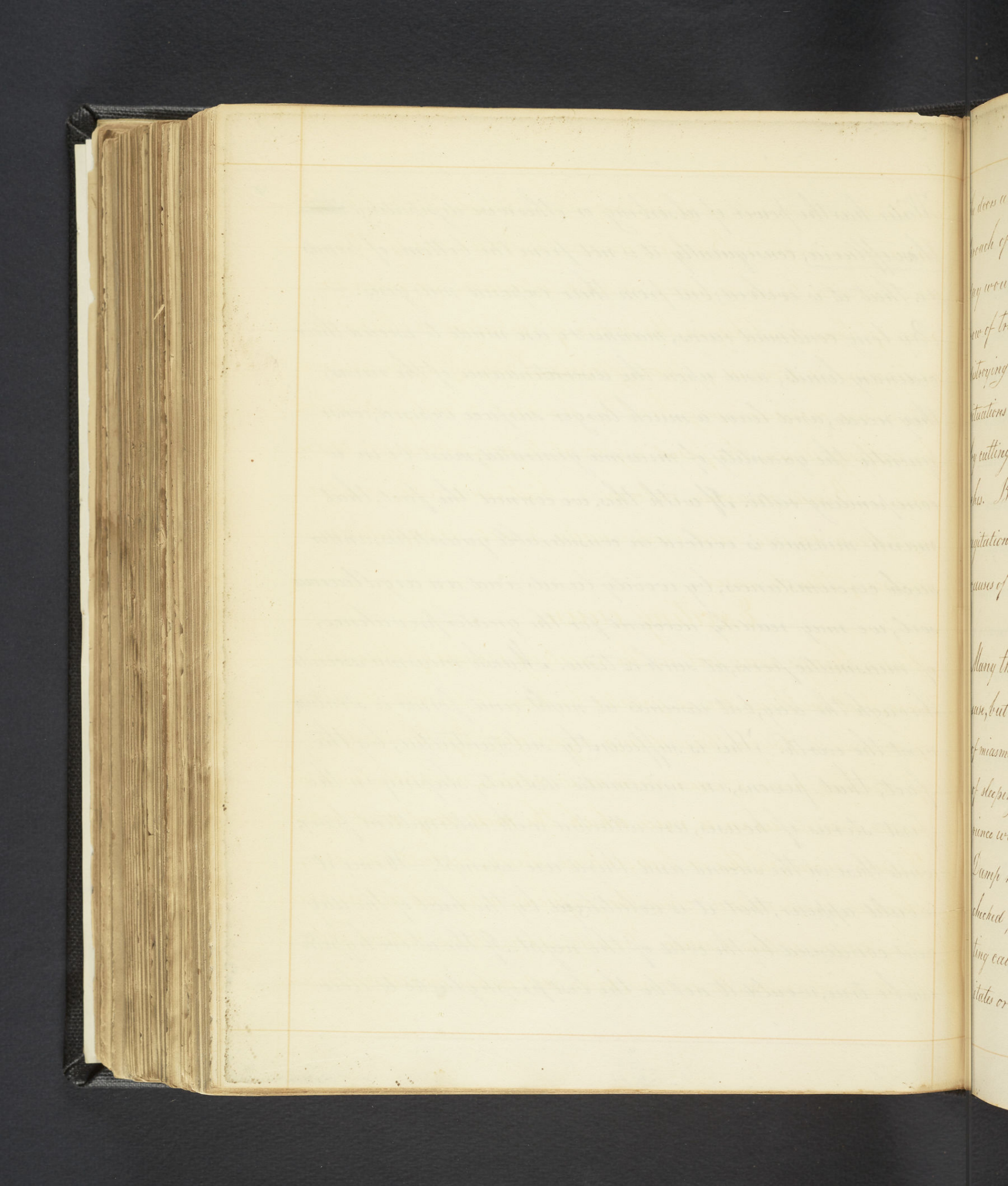
Water has the power of absorbing or otherwise dissipating ~~this~~ these effluvia; consequently it is not from the bottom of ponds &c. that it is evolved; but from their exposed margins. By long continued rains, marshes &c. are made to exceed their ordinary limits, and upon the discontinuance of the rains, they recede, and leave a much larger surface exposed; consequently the quantity of miasma generated, must be in a corresponding ratio. If with this, we connect the fact, that marsh miasma is evolved in considerable quantities, under such circumstances, by woody lands and an argillaceous soil, we may readily account for the greater prevalence, of miasmatic fevers, at such a time. Marsh miasma ascends through the day, but descends at night and forms a stratum next the earth. This is sufficiently substantiated, by the fact, that persons, in miasmatic districts, sleeping in the first stories of houses, are attacked with intermittent fevers, while those in the second and third are exempt. Hence it would appear, that it is volatilized by the heat of the day and condensed by the cold of the night. If the above hypothesis be true, would it not be the best prophylactic to close



the doors and windows of sleeping apartments upon the approach of night? By this means the purer air of the day would be in a great measure retained. A grove or row of trees has likewise the power of impeding or otherwise distroying a stream of these effluvia. I myself have known situations comparitively healthy, rendered almost pestilential, by cutting down the forest adjacent to neighbouring marshes. Besides miasma, extremes of heat and cold, mental agitation &c. are said occasionally to act as predisposing causes of this disease.

Exciting cause.

Many things may act as the exciting causes of this disease, but nothing has a greater tendency to promote the action of miasmatic poison, than damp night air. Of the danger of sleeping near opened doors or windows, melancholy experience warns us in a voice which the most deaf must hear. Damp rooms, clothes or beds, intense study, violent exercise, checked perspiration and the passions, may all act as exciting causes of this disease. Finally, every thing which debilitates or depresses the system, may act as an exciting cause.

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Prognosis.

In forming our prognosis we should attend particularly to the length and violence of the paroxysms, and the state of the functions. Weakness and irregularity of the voluntary motions, delirium, subsultus tendinum, startings and coma, are all indications of great danger. To which may be added, a black slimy incrustation on the tongue, offensive sweat or urine, and black foetid stools. The anticipating ague, showing there is a tendency to run into the remittent or continued type, is consequently inauspicious. A comatose state, with a full strong pulse, is indicative of the greatest danger, inasmuch as it is often the precursor of fatal apoplexy. If the apyrexia be incomplete, or the patient feel languid, dejected and drowsy; if there be loss of appetite and oedematous swellings of the inferior extremities, we must necessarily form an unfavourable prognosis. But on the contrary, if the ague be postponing; if the urine deposit a lateritious or brickdust sediment; if the apyrexia be distinct and complete, and if the appetite and digestion be unimpaired, we may look forward

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Termination.

Intermittent fever may terminate in the cure, in remittent or continued fever, in diarrhoea, dysentery, dropsy, congestion of some of the large viscera, as the liver, spleen, pancreas &c., or in death. Death may take place in the cold stage, from the system being depressed below the point of reaction, or in the hot stage, when there is great determination to the head, from the rupture of some bloodvessel, producing apoplexy.

Treatment.

In the treatment of intermittent fever, there are two important indications. 1st To moderate the violence of the paroxysm. 2ndly To prevent its return.

1st To moderate the violence of the paroxysm. This is naturally divided into three parts. 1st The treatment of the cold stage 2ndly of the hot and 3rdly of the sweating.

The treatment of the cold stage.

When the first symptoms of the cold stage make ~~their~~ their appearance, the patient should be put in bed,

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and warm bricks, stones or bottles of hot water, should be applied to the extremities and along the course of the spine, so wrapped up as not to come immediately in contact with him. At the same time, he should drink freely of warm herb teas, or take an opiate. Opiates, combined with diaphoretics at this time, are of the most decided advantage. Another remedy, of the greatest importance in this stage, is an emetic. It will seldom fail to produce a diaphoresis and consequently, ensure a speedy solution of the paroxysm. Besides acting on the primary seat of the disease, it completely revolutionizes the system, insomuch that the remotest parts of the animal economy, feel the effects of its all-pervading influence.

Treatment of the hot stage.

The great desideratum in the hot stage, is to induce diaphoresis. To this end, nauseating doses of tartarized antimony, are eminently adjuvant. But a composition, which I think equally usefull if not preferable, is the compound powder of ipe-

cacuanha or Dover's powder. We have the highest authority for the administration of opiates in this stage. Dr Pind particularly recommends their exhibition at this time, in a full dose. I think the remedy, in most cases, a dangerous one. At this time, there is not unfrequently a preternatural determination to the brain, insomuch as often to produce delirium, coma and even apoplexy; and opium being a powerful stimulant, must necessarily excite the circulation, endangering the rupture of some bloodvessel in the substance of the brain itself, or its lining membranes. Where no such determination exists, it may be both safe and efficacious. If the hot stage be characterized by great determination to the head, a full strong and active pulse, and other marks of a phlogistic diathesis, it then becomes necessary, if not contraindicated, to abstract blood freely. If there shall have been great debility in the preceding apyrexia, however urgent the present symptoms may be, we should deplete with the greatest caution; for should the lancet be

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employed freely under such circumstances, we may look for the most alarming symptoms at the next cold fit. In such cases, the abstraction of a few ounces of blood from the temples, by means of cups or leeches, (which can but little affect the general circulation,) will often act like a charm. Cold applications will often succeed, when other remedies, seemingly more powerful, shall have failed. We may more safely deplete in spring, when the sthenic diathesis usually prevails, than in autumn, when most diseases have a typhoid tendency.

Treatment of the sweating stage.

All we have to do in the sweating stage, is to avoid whatever might have a tendency to check the perspiration, and support the strength, if necessary, by gentle cordials.

2 nd ly To prevent a return of the paroxysms.

This comprises the treatment in the apyrexia.

An opiate, given in a full dose, so that we may have its full effect about the time of the anticipated at-

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tack, will so interrupt the concatenated train of morbid associations, as to prevent its recurrence at that time. This I have seen tried repeatedly, and never without success. An emetic given at the same time, will usually be productive of the same result. Neither of these will cure the disease often, but we thereby gain a truce for the exhibition of more important remedies.
The Peruvian bark has long and deservedly held a distinguished place in the cure of this disease. No article ever met with more violent opposition, upon its introduction into the materia medica. Its opponents explored the animal, vegetable and mineral kingdoms; they tried every article, bitter, astringent and tonic, and in every possible combination which human ingenuity, or prejudice could devise, to find a substitute. It is needless to add, their labours were unfruitful. Two hundred years have elapsed, since its first application to the cure of this disease, and all subsequent experience confirms its efficacy.
There are three officinal species in common use (viz)

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the cinchona lancifolia or pale bark; the cinchona cordifolia or yellow bark, and the cinchona oblongifolia or red bark. The bark of several other species also, of late discovery, are used. The discovery and preparation of the sulphates of quinine and cinchonine, is certainly one of the greatest trophies of modern pharmacy. The bark has been discovered to possess an alkaline or salifiable base, in which its virtues principally reside, and which, by the addition of sulphuric acid, forms the above mentioned salts. This alkali is different in the different species; that which is obtained from the yellow, is called quinine; that which is obtained from the pale, is called cinchonine; both of which are obtained from the red.
A grain of either of these salts, is the ordinary dose, and is equivalent to a drachm of the crude bark. Though this be the ordinary dose, more may be often given with advantage. Ten grains have been taken through mistake,

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without producing any untoward symptoms, but on the contrary, arrested an obstinate intermittent. This preparation possesses decided advantages over bark in substance. Minute in its dose, the most irritable stomachs will be able to retain it. It is also peculiarly adapted to children, and those persons, who from idiosyncrasy or other causes, have an antipathy to the bark in substance.
The common dose of the bark, is a drachm, but larger doses are often given. The bark is also used, in infusion, decoction, tincture, extract, clysters, and applied to the surface. All these modes are inferior to the bark in substance, and are only resorted to, when from irritability of the stomach or other causes, the latter cannot be retained. They will therefore be, in a great measure, superseded, by the sulphate of quinine. There has been much altercation about the most proper time to administer this article, and also about the preparatory measures, necessary to

be taken, previous to its exhibition. Dr Cleghorn waited untill the fifth day, in tertians, to see whether or not, the bark would be necessary, and Dr Brocklesby "let the fever run on a little, because, says he, "giving the bark too soon, produced much pain in the head, yellowness of the eyes and sometimes continued fever." I am persuaded that in those cases, the bark was given without regard to the state of the primae viae. To say the least, I have never seen a case, in which it was not advisable, to give the bark as soon as the necessary preparatory measures shall have been taken. By procrastination, we have the combined powers of disease and habit to combat withal. Where there is much pain in the head, throbbing of the temporal arteries, a full, strong and active pulse, and other marks of the phlogistic diathesis, we must resort to venesection. The rules regulating this evacuation, were delivered when treating of the hot stage. To them, I have only to add, that

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blood should be drawn as early in the disease, as circumstances will admit of. The next thing demanding our attention, is the state of the primae viae. Here emetics have been almost superseded by purgatives, the more fashionable, but not more usefull class of evacuants. I would not wish to be understood as derogating them, but to say less would be extenuation. In recent attacks, where there is much gastric distress, furred tongue, &c. I am firmly persuaded, emetics should have the preference. They make a powerful impression on the primary seat of the disease, and if judiciously prescribed, break the first link in the chain of morbid derangement, and the rest falls as a consequence. They may be administered in the apyrexia, and occasionally in every stage of the paroxysm. I think their application to the hot stage, mostly exceptionable.
At this time we frequently find a preternatural afflux of blood to the brain, which the effort of

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vomiting will always increase. If an emetic were administered under such circumstances, the consequences might be fatal. Moreover, there is nothing to be gained by them at this time, more than at another, which may not, in a great measure, be obtained by nauseating doses. How often emetics should be repeated, cannot come under the cognizance of a general rule. One will often be sufficient. Suffice it to say, they should not be discontinued, until every symptom, indicating a foul state of the stomach, shall have disappeared. I will take this opportunity of remarking, that in obstinate cases, kept up by visceral obstructions, independent of inflammation, emetics are most decidedly usefull. They should be given every morning, for five or sixe days successively, the patient kept in bed, and opiates in small doses administered, every five or sixe hours during the day. Purgatives next demand our attention. Here calomel stands preeminent. We frequently

find intermittent fever, and a redundancy of bile, or some hepatic derangement, coexistent. To such cases, calomel is peculiarly adapted. Besides the dominion which it exercises over the system generally, it appears to exert a kind of specific influence over the hepatic system. It is customary to combine it with some other purgative, as jalap, rhubarb or gamboge. The same remark which I made when treating of emetics, is equally applicable to purgatives, that is they should be repeated until the primae viae shall be completely cleansed. After these premises, we should proceed to the exhibition of the bark. It should be given, only during the apyrexia, and so administered, that we may have its full effect about the time of the expected paroxysm. An ounce, given in drachm doses, during the last eight hours immediately preceding the wonted attack, will in a majority of cases, prevent its recurrence. The best general rule is, to give as much as the stomach will bear. We may frequently counteract its nauseating ef-

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fects, by the addition of an aromatic. If it purge, we must add some anodyne; if on the contrary it occasion costiveness, some gentle aperient will be necessary. Many menstrua have been employed to disguise its taste. Dr Lind says "a drachm of the bark, in two ounces of milk, drank quickly after it is mixed, may be taken by a person of the most delicate taste, and by washing the mouth afterwards not the least flavour of the bark will remain."
I am persuaded that liquorice will accomplish this end as effectually as any other article. The bark should be continued, until the general health and strength of the patient shall be restored, or alternated with some other tonic. If the attack shall have been severe, or protracted, a relapse is to be feared; to prevent which, the bark should be given in damp chilly weather, for weeks or even months.
We have several indigenous articles which have been found useful in this disease – the prunus virginiana, cornus florida, eupatorium perfoliatum &c.

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The latter has been highly reccommended of late. That they all posses tonic powers, and will occasionally arrest the disease, does not admit of a doubt; but they are inferior to the cinchona, and except in mild cases, should never be employed to its exclusion. All the vegetable and mineral tonics have been employed. The black oxyde of iron, I have seen, beneficially used, in alternation with the bark. An enlargement of the liver, spleen, or pancreas, is frequently the effect of protracted intermittents. Such cases are generally more difficult of cure. Their removal is generally effected, by an alterative course of mercury, or a gentle ptyalism. If these fail, a tour of pleasure, through some healthy and mountainous section of the country, will be beneficial. Besides the profit acquiring from exercise and an invigorating atmosphere, there is a change of scenery and those every day ocurrences, which, by virtue of association, contribute, not a little, to its obstinacy.